MOBILE-BASED APPLICATIONS DETERMINATION OF NETWORK COMPUTER TECHNIQUES FOR VOCATIONAL COMPETENCE TESTS OF VOCATIONAL SCHOOL OF PRINGSEWU DISTRICT

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Abstract

Qualified Vocational High school is reviewed from the feasibility of a facility and infrastructure that helps develop students ' skills in the learning process so as to meet the vocational competency Test standard. The purpose of this research is to have the knowledge of laboratory facilities network computer engineering that belongs to the district Vocational High school Pringsewu. In this study used five alternatives as samples that will be tested feasibility laboratory Computer Engineering Network to determine the quality of laboratory owned vocational High school related to using the calculation process Calculation process using the system. The feasibility test process uses a faster system with accurate results compared to the calculation process manually requiring a long time. Based on the comparison of due diligence process it can be said that the feasibility test process using the system is faster, precise, easy and efficient.

Keywords: application, laboratory, Pringsewu Regency, quality

1.0 INTRODUCTION

Today's technological developments are the basis for developing a nation's life and state. The progress of a country is based on how far science and technology are ruled by the country. This is very reasonable because science and technology are the basis of every aspect of human life. The development of science and technology advances and education enhances human resources to be able to face sharp competition. One of the secondary educations that provides students with special skills, productive and independent to be ready to compete in the era of globalization, the vocational high school. Based on the number of vocational high schools in Pringsewu District under the Ministry of Education and Culture in 2011-2017 year to year is always changed. In 2011-2012 there were 20 vocational secondary schools, in 2013 there were 29 the Vocational Middle School, in 2014 decreased to 27 vocational secondary schools, in 2015 up to 28 vocational secondary schools, in 2016 experienced Another increase to 32 vocational high school, and in 2017 became the 31st Vocational High School[1].

In the previous research conducted by Susanto (2016) under the title Evaluation of technical practice facilities and practices of Komuputer and network at the Vocational High school in Sukoharjo district. This research is a program evaluation study with GAP evaluation model using a descriptive and quantitative approach with percentage analysis. The objects in this research are the facilities and infrastructures of the expertise pack of computer engineering networking skills at 16 vocational high schools in Sukoharjo district using data collection techniques with documentation, observation, and interview methods and Data analysis techniques using descriptive statistics. The results showed that: 1) the level of fulfillment of facilities and infrastructure in the work area of electrical mechanical Engineering has not fulfilled the standard, 2) the level of fulfillment of facilities and infrastructure in the practice room of the network installation has not meet the standard, 3) level The fulfillment of facilities and infrastructure in the area of repair and maintenance of computer does not

meet the standards, and 4) the level of fulfillment of storage space and infrastructure and instructors have not fulfilled the standard[2]. The second research conducted by Oktafianto, Anggraeni, Suyono (2017) under the title of decision support System of vocational high school in Pringsewu district using method Weighted Product (WP). This research analyzes the decision support system in the training of vocational High school in Pringsewu district to help stakeholders whether the Government or the general public overcome difficulties in determining the quality of vocational high school in Pringsewu district. In this study, six criteria were used as a reference to the quality of vocational high school in Pringsewu district. The six criteria are building/study room, library, availability of laboratories, school accreditation, teacher Science linearity, and student percentage that pass national exam[3].

This research was conducted as an effort to measure the feasibility of computer Engineering network of Pringsewu Sub-district by implementing several assessment criteria that have been determined. Laboratory Feasibility Measurement Network Computer Engineering is conducted to determine the proper or absence of a network computer engineering laboratory at the Vocational School in Pringsewu district to participate in the vocational competency test.

With the measurement of laboratory feasibility is expected to help vocational high school, education personnel, general public, and government to know the feasibility of network computer Engineering Laboratory in school study program Vocational secondary schools in Pringsewu district and can improve the quality of laboratory facilities and infrastructure to meet the standards of vocational competency test.

2.0 THEORETICAL
2.1. Information System
Wing Wahyu Winarno (2006) Information System is a set of mutually working components, which are used to record data, process data and present information to decision makers in order to make good decisions. Information system is a system in an organization that brings together the needs of processing daily transactions that support the operation function of a managerial organization with the strategy activities of an organization to be able to provide to a particular outside party with the necessary reports[4][5].

From the definition above, it can be concluded that the information system is a system in an organization or a set of components that cooperate together to record data, process data and present information as a system-forming entity Information.

2.2. PHP and HTML
Betha Sidik (2012:4) PHP is a script programming language that creates HTML documents on the fly executed on the Web server. Budi Raharjo (2010:41) PHP is one of the script programming languages designed to build Web applications[6][7][8].

HTML is a page-description language that creates hypertext or hypermedia documents. HTML includes the code controllers in a document at various points that can be specified, which can create a link (hyperlink) with other parts of the document or with other documents that reside on the Word Wide Web. (Janner Simarmata, 2006:37).Budi Raharjo (2010:286) "HTML is a text file written using certain code rules to serve to a user via a Web browser application[9][10].

2.3. MySQL
MySQL is one of the most popular types of database servers and is widely used for building Web applications that use databases as the source and processing of their data. (M. Rudyanto Arief 2011:151). [11]

2.4. Website

The Website is one of the applications containing multimedia documents (text, images, sound, animation, video) that uses HTTP protocol (Hypertext Transfer Protocol) and to access it using the software called Browser. (M. Rudyanto Arief 2011:7)[12]

2.5. Regency Of Pringsewu

Pringsewu is one of the regencies in Lampung province, Indonesia. The district was confirmed to be a regency in the Council of Representatives plenary meeting on 29 October 2008, as a division of Tanggamus district. The district is located 37 kilometers west of Bandar Lampung, the provincial capital with an area of 625km2 and a population of 382,841 inhabitants. Pringsewu Regency. Pringsewu has been known as the "Education City" in southern Lampung, since it has been a complete education level since the kindergarten to college.

3.0 WATERFALL METHOD

The waterfall method does a systematic approach and sequence from the level of system needs and then to be discovered analysis, design, coding, testing/verification and maintanence. Called Waterfall because the step by step must wait for the previous stage and walk sequentially. (Muharto and Arisandy Amarita, 2016:105)

From the above research can be concluded that, waterfall method is often called the method of waterfall, is a method of development of information system is systematic and sequence from the level of system needs and then to be known analysis, design, coding, testing/verification and maintanence. Called Waterfall because step by step must wait for the previous stage and walk sequentially.[13]
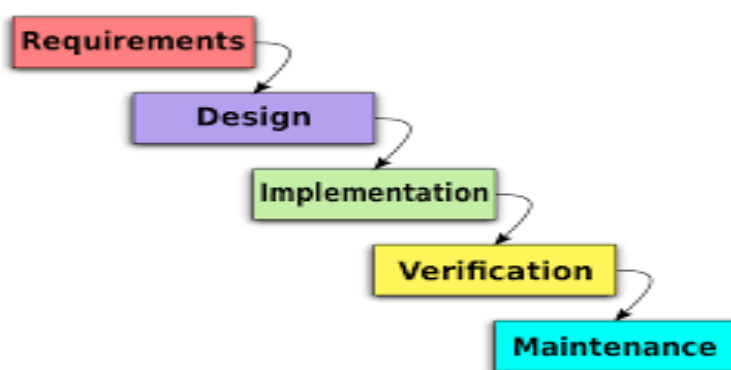
Images 3.2 Waterfall Diagram Model

analysis

In this step is an analysis of system needs. Data collection in this stage can do a study, interview or study literature. An analysis system will be able to make the information as much as possible so that it will create a computer system that can perform the tasks that the user wants. This stage will generate data that relates to the user's wishes in the creation of the system. This document will be a reference to the analysis system to translate into the programming language.

Design

The design process will translate the requirement of a software update that can be estimated before coding. This process focuses on data structures, software architectures, interface representations, and procedural details. This stage will generate a document called software requirement. This document will be used by programmers to perform the activity of the system.

Program Writing

Coding is a design translation in a language that can be recognized by the computer. Performed by a programmer who will translate the transaction requested by the user. This stage is the real stage of working on a system. In the sense of computer users will be maximization of this stage. After the encoding is complete, testing will be done to the system that has been created. The purpose of testing is to find errors against the system and can then be repaired.

Testing the Program

This stage can be said to be final in making a system. After doing analysis, design and coding then the finished system can be used by the user.

Maintenance

Software that is hard to convey to users will inevitably change. The changes could be due to an error because the software must adapt to the new environment (peripherals or new operating system) or because the user needs functional development.

## 4.0 PLANNING AND IMPLEMENTATION
4.1. System Design

Context diagrams are the highest level in a data flowchart that only contains a process that shows the system as a whole and is usually numbered 0 (zero).
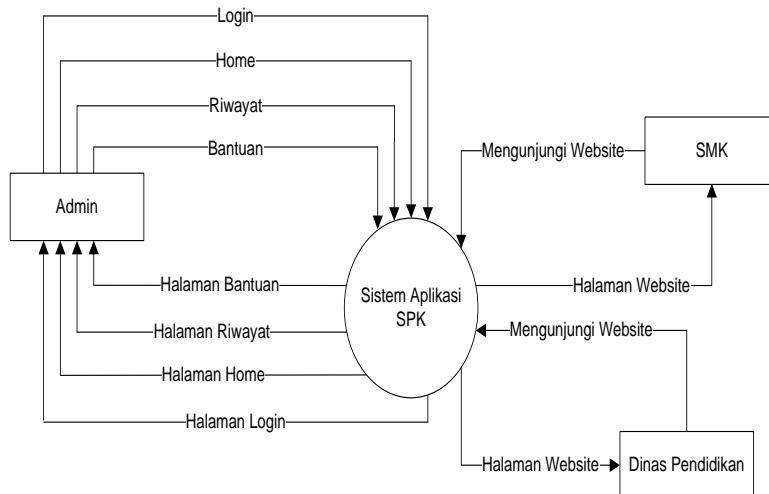

Images 4.1 Context Diagram

The Data Flow Diagram or often abbreviated DFD is an overview to design a system or system design to be created. In DFD level 0 is defined where DFD level 0 has an overview of how the system interacts with external entities and already lists the data stores needed by the system.
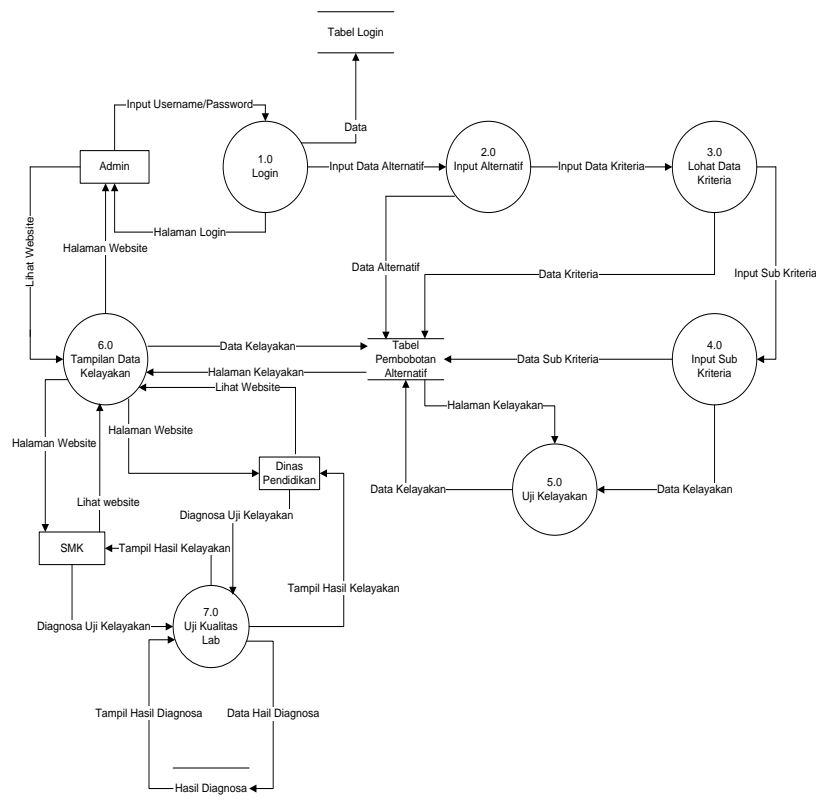
Images 4.2 DFD Level 0

4.2. ERD (Entity Relationship Diagram)

ERD is a diagram depicting the design of data to be stored or a form of logic that will be used to analyze and design a database that will be created. The ERD design is used to know how many entities and attributes of the database. In the design of the TKJ laboratory feasibility testing database using the SAW method, ERD is a tool that can be used to describe the database of a system so that the relationship between tables can be known to the relation clearly, in addition ERD is also used to show attributes on the related and normalized databases, so it does not lead to unclear data on its relationship.
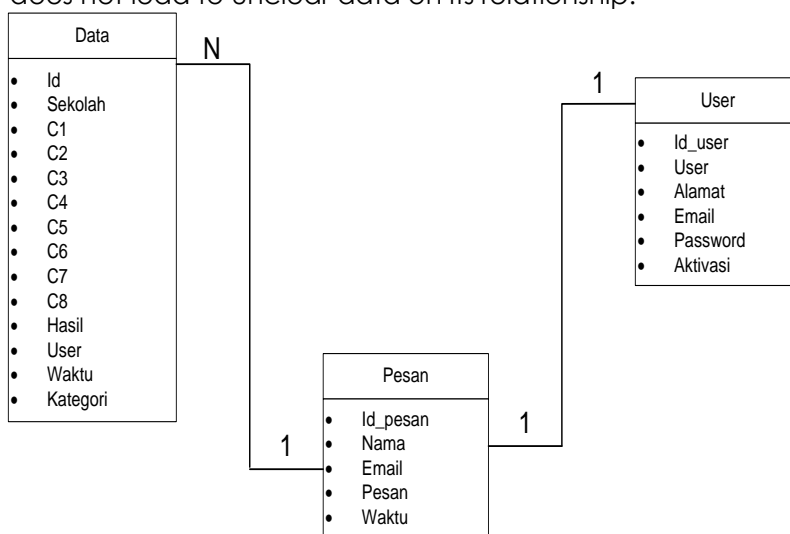

Images 4.2 Entity Relationship Diagram (ERD)

4.3. System implementation

The login page is used by the admin to be able to login to the Administrator dashboard page by entering the username and password.

Images 4.3 Login page

The Scaffolding page admin generates a main admin page view and has an admin menu view, where to perform admin data processing/manipulation Simply choose one of the required menus.
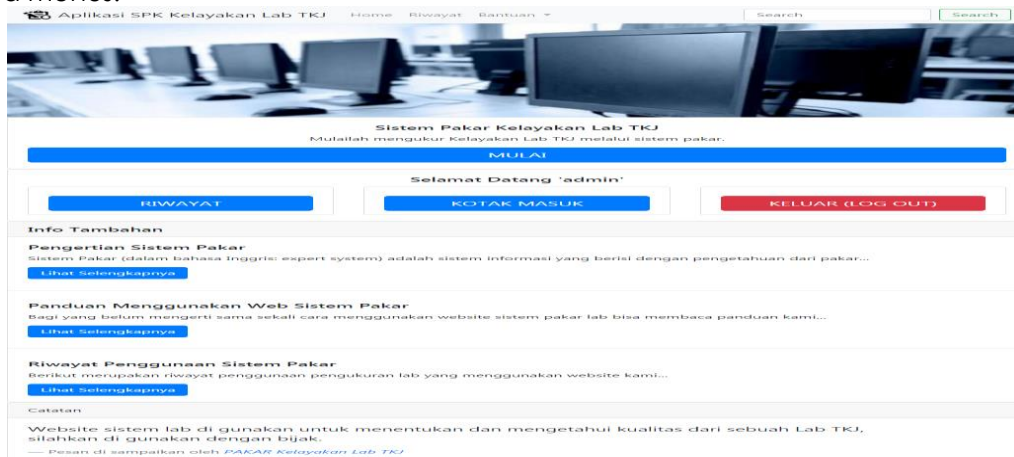
Images 4.4 Main Page

On designing the input pages the number of alternate admins can input the amount of alternate data used. The following is an allernative input page display based on number.

Uji Kelayakan Menentukan Kualitas Banyak Lab

Tahap 1/2

Jumlah Data Sekolah (Minimal 1)

0

Nama Data Ini (Di pakai untuk penamaan tabel data)

Berikan nama pada yang ingin di buat

Kembali   Selanjutnya

Images 4.5 Alternate Input

Designing on the calculation page, admins can input data criteria, sub-criteria based on the alternatives that have been tested. Here is the Calculation Page view.

Aplikasi SPK Kelayakan Lab TKJ   Home   Riwayat   Bantuan ▾   Search   Search
Home / Pilih Menu / Tahap 2

Uji Kelayakan Menentukan Kualitas Banyak Tempat Lab

Tahap 2/2 | Data Alternatif No 1/2 | Database erma

Nama Sekolah
Nama Sekolah
PC Server:
PC Core 1
PC Client:
PC Core 1
Sistem Jaringan:
Listrik
Sofware:
SO Debian
Ruangan:
Luas Ruangan Lebih 10x8m
Peralatan Tambahan:
< 5 Peralatan
Kelayakan Kursi:
Kursi siswa 1 buah per siswa ukuran memadai, desain dudukan dan sandaran untl
Jarak Meja:
20 cm

Selanjutnya

Images 4.6 Implementation of calculation page

The draft of the calculated result page displays the results in the form of a percentage and graphs of the calculation stages performed using the SAW method equation. Here is a view of the calculation results page.

Aplikasi SPK Kelayakan Lab TKJ   Home   Riwayat   Bantuan ▾   Search   Search
Home / Pilih Menu / Hasil Banyak Lab TKJ

Hasil Kelayakan Kualitas Beberapa Lab

Hasil Data Tabel: Tabel Kriteria Erma

No	Alternatif	C1	C2	C3	C4	C5	C6	C7	C8	Kualitas
1	SMK N SUKOHARJO	90	80	80	80	100	60	80	95	82.75%
2	YPT	85	80	80	80	100	80	80	90	83.5%
3	SMK KH GHOLIB	80	85	80	90	85	80	80	60	81.5%
4	SMK PGRI II	70	60	80	80	80	80	90	85	75.25%
5	SMK Yasmida Ambarawa	100	95	90	95	100	60	100	80	92%

Hasil Proses:

1. Menggunakan Metode Fuzzy
$V1=(90*20\%)+(80*20\%)+(80*15\%)+(80*10\%)+(100*10\%)+(60*10\%)+(80*10\%)+(95*5\%)=82.75\%$
$V2=(85*20\%)+(80*20\%)+(80*15\%)+(80*10\%)+(100*10\%)+(80*10\%)+(80*10\%)+(90*5\%)=83.5\%$
$V3=(80*20\%)+(85*20\%)+(80*15\%)+(90*10\%)+(85*10\%)+(80*10\%)+(80*10\%)+(60*5\%)=81.5\%$
$V4=(70*20\%)+(60*20\%)+(80*15\%)+(80*10\%)+(80*10\%)+(80*10\%)+(90*10\%)+(85*5\%)=75.25\%$
$V5=(100*20\%)+(95*20\%)+(90*15\%)+(95*10\%)+(100*10\%)+(60*10\%)+(100*10\%)+(80*5\%)=92\%$

Lab TKJ kualitas tertinggi memiliki nilai 92% adalah no 5

Images 4.7 Calculation results

The Calculated results page displays the results that are percentages, graphs, and stages of calculation of alternate data for each criterion that the admin uses as a sample, the following is a view of the calculated results page.
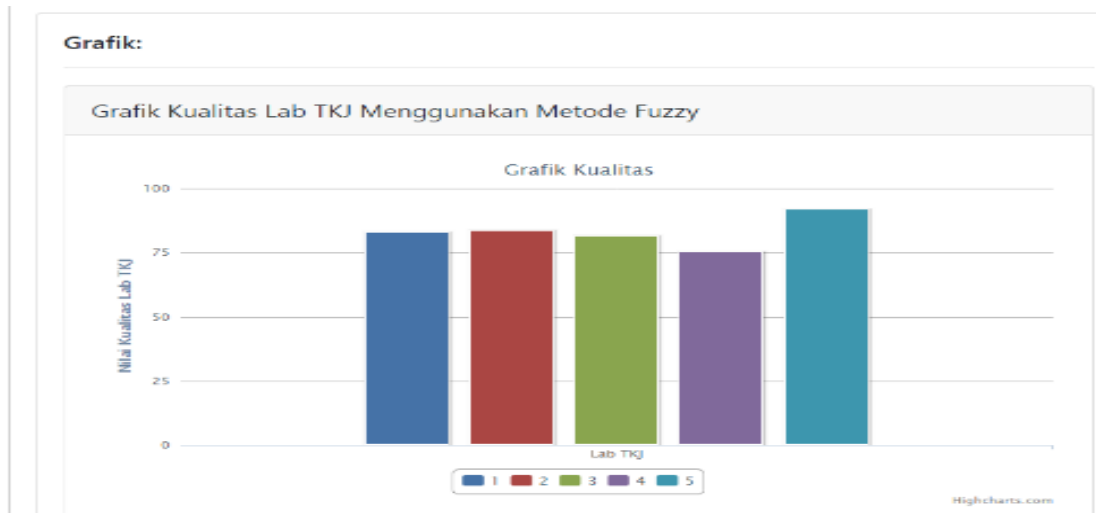
Images 4.8 Chart of Feasibility test results

5.0 CONCLUSION

Based on research conducted using the Website to measure the feasibility of TKJ laboratories can be used as a solution in resolving problems to determine the feasibility of TKJ laboratory in SMK Pringsewu District by applying 8 Existing criteria such as PC Server, PC Client, network system, Software, room, additional equipment, seat qualification, and table spacing. The feasibility measurement process can be done more precisely, accurately and efficiently.

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